**Assignment No: 3**

**Problem Statement:** Implement C++/Java/Python program to create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called function get\_data() to initialize base class data members and another member function display\_area() to compute and display the area of figures. Make classes to suit their requirements. Using these three classes, design a program that will accept dimension of a triangle or a rectangle interactively, and display the area. Remember the two values given as input will be treated as lengths of two sides in the case of rectangles, and as base and height in the case of triangles, and used as follows:

Area of rectangle= x\*y

Area of triangle =1/2\*x\*y

**Aim of Assignment:** Understand the concept of Function overloading.

**Description:**

1. **Function Overloading:** Overloading allows different methods to have the same name, but different signatures where the signature can differ by the number of input parameters or type of input parameters or both. Overloading is related to compile-time (or static) polymorphism. Unlike C++, Java doesn’t allow user-defined overloaded operators. Internally Java overloads operators, for example, + is overloaded for concatenation.
2. **Rules of overloading:** Existing operators can only be overloaded, but the new operators cannot be overloaded. The overloaded operator contains at least one operand of the user-defined data type. We cannot use friend function to overload certain operators. However, the member function can be used to overload those operators. When unary operators are overloaded through a member function take no explicit arguments, but, if they are overloaded by a friend function, takes one argument. When binary operators are overloaded through a member function takes one explicit argument, and if they are overloaded through a friend function takes two explicit arguments.

**OOP Concept Used:**

1. Class
2. Friend Function/Class
3. Overloading
4. Inheritance

**Conclusion:** In this experiment we have learnt regarding new concepts in OOP i.e. Function Overloading